

**Notice of Allowability**

Application No.

10/810,732

Examiner

Faye Boosalis

Applicant(s)

BARRY ET AL.

Art Unit

2884

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to submission of 1 May 2006.
2. ☒ The allowed claim(s) is/are 1-40.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE**

### ***Comment on Submissions***

1. This communication is responsive to submissions 1 May 2006.

### ***Allowable Subject Matter***

2. Claims 1-40 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the prior art does not disclose or fairly suggest an optical density sensor for sensing toner on a surface in an image forming device, comprising: an optical density sensor including a collimator extending into the inside or interior of the integrating cavity.

The examiner notes that while it is known in the art for an optical density sensing toner on a surface in an image forming device, comprising: an integrating cavity (42) having a diffuse, reflective inner surface (44) and having a view point (50) formed therein; an optical source (46) disposed in a collimator (48) and positioned to illuminate the surface through the view point, the collimator flush with the surface of the integrating cavity; and an optical detector (54) disposed within the integrating cavity outside of a direct path of the source (See admitted prior art, Fig. 15, and Specification, paragraph [005], pages 2-3), the prior art does not fairly suggest an optical density sensing toner on a surface in an image forming device, comprising: an optical density sensor including a collimator extending into the inside or interior of the integrating cavity.

Regarding independent claim 18, the prior art does not disclose or fairly suggest an optical density sensor for sensing toner on a surface in an image forming device,

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comprising: an optical detector sensing circuit on a circuit card disposed proximate the optical source and the optical detector.

The examiner notes that while it is known in the art for an optical density sensing toner on a surface in an image forming device, comprising: an integrating cavity (42) having a diffuse, reflective inner surface (44) and having a view point (50) formed therein; an optical source (46) disposed in a collimator (48) and positioned to illuminate the surface through the view point, the collimator flush with the surface of the integrating cavity; and an optical detector (54) disposed within the integrating cavity outside of a direct path of the source (see admitted prior art, Fig. 15, and Specification, paragraph [005], pages 2-3) and the illumination controller (16), which houses the optical source drive circuit and the optical detector sensing circuit, is remote from the integrating cavity (12) and the optical detector (20) (see for example Parker et al – US 5,548,120 A – col. 3, lines 55-63 and col. 8, lines 47-57), the prior art does not fairly suggest the optical density sensor having an optical detector sensing circuit on a circuit card disposed proximate the optical source and optical detector.

Regarding independent claim 26, the prior art does not disclose or fairly suggest an optical density sensor for sensing toner on a surface in an image forming device, comprising: a compensating slot formed in the integrating cavity and positioned to allow light reflected from the surface to directly strike the optical detector.

The examiner notes that while it is known in the art for an optical density sensing toner on a surface in an image forming device, comprising: a light integrating cavity (18) having a light input port (17) into which light rays (15) from a light source (14) are

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directed by an optical system (16). The light is diffusely reflected by the interior surface of the integrating cavity (18), and emerges from an elongated slot (28) for exposing photographic film. To compensate for fluctuations in light intensity caused by arc wander or a xenon arc lamp, light is directed from a feedback port (20) in the integrating cavity (18), through fiber optic cable (22), to an optical detector (24). Light entering the feedback port (20) is directed to the detector via fiber-optic cable (22). Light diffusing member (34) is advantageously interposed between the integrating cavity (18) and the fiber optic cable (22) (see for example Moberg et al – US 5,650,843 A – Figs. 1-4 and col. 1, lines 46-67), the prior art does not fairly suggest an optical density sensing toner on a surface in an image forming device, comprising: a compensating slot formed in the integrating cavity and positioned to allow light reflected from the surface to directly strike the optical detector.

Regarding independent claim 36, the prior art does not disclose or fairly suggest an optical density sensor for sensing toner on a surface in an image forming device, comprising: an optical density sensor including a collimator extending into the inside or interior of the integrating cavity, an optical detector sensing circuit on a circuit card disposed proximate the optical source and the optical detector or a compensating slot formed in the integrating cavity and positioned to allow light reflected from the surface to directly strike the optical detector.

The examiner notes that while it is known in the art for an optical density sensing toner on a surface in an image forming device, comprising: an integrating cavity (42) having a diffuse, reflective inner surface (44) and having a view point (50) formed

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therein; an optical source (46) disposed in a collimator (48) and positioned to illuminate the surface through the view point, the collimator flush with the surface of the integrating cavity; and an optical detector (54) disposed within the integrating cavity outside of a direct path of the source (See admitted prior art, Fig. 15, and Specification, paragraph [005], pages 2-3), an illumination controller (16), which houses the optical source drive circuit and the optical detector sensing circuit, is remote from the integrating cavity (12) and the optical detector (20) (see for example Parker et al – US 5,548,120 A – col. 3, lines 55-63 and col. 8, lines 47-57), and light diffusing member (34) interposed between the integrating cavity (18) and the fiber optic cable (22) (see for example Moberg et al – US 5,650,843 A – Figs. 1-4 and col. 1, lines 46-67), the prior art does not fairly suggest an optical density sensing toner on a surface in an image forming device, comprising: an optical density sensor including a collimator extending into the inside or interior of the integrating cavity, having an optical detector sensing circuit on a circuit card disposed proximate the optical source and optical detector or a compensating slot formed in the integrating cavity and positioned to allow light reflected from the surface to directly strike the optical detector.

Regarding independent claim 38, the prior art does not disclose or fairly suggest a method of sensing toner on a surface in an image forming device, comprising: sensing light reflected from a surface that directly strikes an optical detector disposed within an integrating cavity.

The examiner notes that while it is known in the art of a method of sensing toner on a surface in an image forming device, comprising: illuminating the surface with an

optical source (46); capturing light reflected from the source by the surface in an integrating cavity (42) having diffuse, reflective inner surface (44), the reflected light passing through a view port (50) formed in the cavity (see admitted prior art, Fig. 15, and Specification, paragraph [005], pages 2-3), the prior art does not fairly suggest a method of sensing light reflected from a surface that directly strikes an optical detector disposed within an integrating cavity.

The remaining claims 2-17, 19-25, 27-35, 37 and 39-40 are allowable based on their dependency.

### ***Conclusion***


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Boosalis whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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